

HANDBOOK

FOR

Tuberculosis Workers

BY

NOEL BARDSWELL, M.V.O., M.D., F.R.C.P.

*Principal Assistant Medical Officer Public Health Department,
London County Council; Medical Adviser Insurance
Committee for the County of London*



LONDON

JOHN BALE, SONS & DANIELSSON, LTD.

OXFORD HOUSE

83-91, GT. TITCHFIELD STREET, OXFORD STREET, W. 1

1920

[All rights reserved]



22502812034

16.11.20 1/6 net. 25 ✓

HANDBOOK

FOR

Tuberculosis Workers

BY

NOEL BARDSWELL, M.V.O., M.D., F.R.C.P.

*Principal Assistant Medical Officer Public Health Department,
London County Council; Medical Adviser Insurance
Committee for the County of London*



LONDON

JOHN BALE, SONS & DANIELSSON, LTD.

OXFORD HOUSE

83-91, GT. TITCHFIELD STREET, OXFORD STREET, W. 1

1920

[All rights reserved]

WELLCOME
LIBRARY

General Collections

P

1788

CONTENTS.

	PAGE
Tuberculosis 	1
The Causes of Tuberculosis 	2
Conditions which predispose to Tuberculous Disease 	3
Massive Infection 	4
Latent or Inactive Disease 	5
Types of Tubercle Bacilli 	6
The Sources of Tubercle Bacilli and their Mode of Entry into the Body 	7
Paths of Infection 	8
Manifestations of Tuberculosis, General and Local	9
Forms of Tuberculous Disease 	11
The Treatment of Tuberculosis, Principles of ...	14
Local Treatment: the Removal of the Bacilli ...	15
General Treatment 	15
The Limitations of General Measures 	18
Special Measures 	20
Prevention of Tuberculosis, Principles of ...	21
The Removal of the Infecting Organisms ...	21
The Raising of Resistance to Tuberculosis ...	24
The Anti-Tuberculosis Administration ...	25
The General Practitioner 	26
The Dispensary and the Tuberculosis Officer ...	27
The Hospital 	28
Home for Advanced Cases 	28
The Colony... 	29

	PAGE
The Open-air School, Day Sanatorium and School	
Medical Service	29
The Sanatorium	30
Care Committees	30
Tuberculosis in Relation to the Social Life of the	
Country	32
Tuberculosis, a Medical and Social Problem ...	34
The Functions of a Care Committee	34
Money	35
The Adjustment of Financial Troubles ...	36
The Remedying of Insufficient Income ...	37
Occupation	40
Change of Employment	43
Vocational Training	46
General Advice to Patients as to Treatment ...	51
Care of the Tuberculous Child	53
The Training of Voluntary Workers	64

JOHN BALE, SONS & DANIELSSON, Ltd.

Aids to Home-Nursing.

(Home-Nursing Simplified and Tabulated). By N. CORBET FLETCHER, M.A., B.C.Cantab. Price **6d.** net. Post free **7½d.**

Home Nursing in Few Words.

By J. M. CARVELL, M.R.C.S., L.S.A. Lond. 14 pp. Folder. Price, strong paper, **2d.** net; cloth, **4d.** net, post **2d.**

Consumption: Its Prevention and Treatment.

By E. W. DIVER, M.D. Second Edition. Cloth. Price **2s. 6d.** net.

The Discharged Consumptive Soldier.

By THOMAS DENMAN, Clerk to the Brighton Insurance Committee. Crown 8vo. Price **1s.** net, postage **4d.**

A Practical Manual of Tuberculosis for Nurses.

By L. T. BURRA, M.D. Oxon. Crown 8vo, pp. 150. Price **2s.** net, postage **4d.**

The Care and After-Care of Consumptives: The Inevitable Complement.

By HAROLD VALLOW, M.D. Crown 8vo, cloth boards, lettered. Price **2s.** net, postage **6d.**

Breathing Exercises. For use after Removal of Post-Nasal Growths (Adenoids).

By DUNCAN MATHESON MACKAY, M.D. Demy 8vo, pp. 4. Single copies **1d.** each, post free **1½d.** Per dozen, **1s.**; post free **1s. 1d.** Per 100, **7s. 6d.**

The Science and Art of Deep Breathing. As a Prophylactic and Therapeutic Agent in Consumption.

By SHOZABURO OTABE, M.B., Tokio, M.D., Bâle. Crown 8vo, 124 pp., and 2 plates. Cloth, **5s.** net, postage **4d.**

The Complete Manikin.

Systems of Body accurately indexed. Invaluable to Students of Anatomy, Medicine, First-Aid, and Allied Subjects. Price **2s.** net, postage **4d.**

First-Aid Anatomical Diagrams.

Thirteen on Roller. Post free. **3s. 9d.** net. Each Diagram separately, **3d.** 5, 6 and 14 (coloured), **6d.** each.

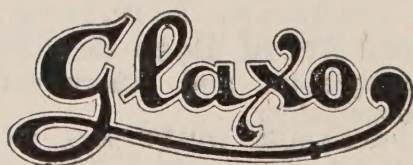
Pocket First-Aid Series. Third Edition.

By COL. R. J. BLACKHAM, C.B., C.M.G., C.I.E., D.S.O., M.D. Pocket Guides to First Aid in Cases of (1) Poisoning, (2) Hæmorrhage, (3) Insensibility, (4) Asphyxia (Suspended Breathing), (5) Fractures, Dislocations and Sprains, 6 Wounds, Bites, Burns, Scalds, Rupture and Minor Injuries. The Series contains all the essentials of First Aid. Printed on linen-lined cards, **3¼ in.** by **5½ in.** **6d.** net each; postage **2d.** extra.

TUBERCULOSIS

*Extract from the Annual Report (1918)
of the Chief Medical Officer of the Board
of Education (page 123, par. 160).*

“THE Royal Commission on Tuberculosis found that the bovine type was present in 50 per cent. of the cases of primary abdominal tuberculosis of children, and, more recently, glandular tuberculosis in children under 10 years of age has been shown to be traceable to bovine bacilli in 70 per cent. of the cases. Tuberculosis of bones and joints has also been shown in a series of cases to be due to bovine tubercle bacilli in 58 per cent., and in children under 4 years of age in 78 per cent. (*Fraser*). This evidence seems to point definitely to bovine infection being contracted by the consumption of tuberculous milk.”



The Super-Milk

—free from the risk of milk-borne tuberculosis and other milk-borne diseases such as typhoid, diphtheria, scarlet fever, &c.

GLAXO, 155, GT. PORTLAND ST., LONDON, W. 1.

Proprietors: Joseph Nathan & Co., Ltd., London and New Zealand.

Tuberculosis.

Tuberculosis, popularly termed consumption, is, of all diseases, the most widely distributed and the most destructive to life, health, and capacity for work. It is rife among all nations, and in all grades of society. It is computed that in this country there are at least half a million persons suffering from tuberculosis; the loss of life from the disease is correspondingly heavy, the annual mortality being some 60,000 persons.

To a considerable degree tuberculosis is a disease of young adult life. Health is menaced or lost at a time when a man or woman should be entering upon the most productive period of their career. It is for this reason that tuberculosis exerts such a ruinous influence upon the national well-being.

Some idea of the material loss to the country resulting from tuberculosis is given by the following expert calculation:—

“A conservative estimate of the net ultimate loss due to mortality from tuberculosis (in England and Wales) in 1911 on

the hypothesis that, had those who died, survived, they would be subjected to twice the mortality from other causes in subsequent life, is £20,000,000. Without the assumption of double mortality, the figures are £25,000,000. Assuming females to have the value of males in providing life capital in the shape of future wage-earners, the totals for both sexes would be nearly double the above sums.”*

The Causes of Tuberculosis.

The essential cause of tuberculous disease is a germ, the tubercle bacillus. Tubercle bacilli are taken into the body in various ways, and under certain conditions set up an inflammatory process whereby the tissues which they have invaded are gradually destroyed. Although tuberculosis cannot exist in the absence of these characteristic organisms, their entry into the body does not necessarily give rise to tuberculous disease.

If the soil be favourable, that is, if the body, for various reasons, be predisposed

*“The Health of the People.” Report by a body of Unionist members of Parliament. The Argus Printing Co., 1918.

to the disease, the seed, namely the tubercle bacilli, effect a lodgment, multiply, and exert their destructive action. On the other hand, the body, if in vigorous health, brings into play certain protective functions which arrest any action of the bacilli and ultimately destroy them. The soil is not favourable.

Conditions which predispose to Tuberculous Disease.

A poor state of health renders a person susceptible to tuberculosis. Therefore, under the heading of predisposing causes are to be classed all conditions which affect adversely the general well-being. Notably among these causes are (1) certain diseases, *e.g.*, influenza, measles, and various affections of the lung, such as whooping cough, bronchitis, and diseases due to the inhalation of foreign substances—for example, fine stone and metal dust; also less severe maladies, such as anæmia and long standing indigestion. (2) Defective, and insufficient food, especially a deficiency in fats. (3) Lack of fresh air and sunlight. The continued breathing of stagnant air is particularly prejudicial. (4) Excess of any kind, especi-

ally in alcohol. (5) Worry and fatigue.
(6) Heredity.

Although the disease is rarely transmitted direct from parent to child, a person born of a family which has shown itself unusually vulnerable to tuberculosis may possess and transmit this susceptibility. Inherited lack of resistance is an important predisposing factor.

Massive Infection.

A relatively small amount of exposure to infection such as has no ill effects upon persons in robust health, may suffice to break down the defences of anyone in poor health. Again, continued or extreme degree of exposure to infection, technically termed "massive infection," such as results from constant attendance upon a consumptive, confined to a small dirty and ill-ventilated room, may overcome the greatest natural resistance. But a healthy person who lives and works under reasonably good conditions, runs little or no risk from contact with tuberculous persons. The experience of sanatoriums and hospitals for consumption is conclusive evidence as to the small

infectivity of tuberculosis, assuming proper precautions be taken.

These facts may hearten a prospective tuberculosis worker if deterred by the fear of infection.

Latent or Inactive Disease.

It is probable that tuberculous disease may result from infection long antecedent to the occurrence of the earliest symptoms ; that, for example, consumption commencing in adult life, may be the outcome of infection in childhood. In such case, during the earlier years of life, good resistance was maintained ; the bacilli, though present in the body, made no progress, but they were not destroyed. Later, as the result perhaps of a less healthy environment, resistance was lowered, the bacilli, so long inactive, established their ascendancy and tuberculous disease resulted. Tuberculosis, when it gives no evidence of its existence, is termed latent or inactive.

This cursory survey of the causes of tuberculosis will explain the prevalence of the disease in this country. The life and habits of the people in all grades of society

contribute in varying degree to most of the causal factors which have been named. The wealthiest cannot escape the debilitating effect of influenza, overwork or worry. The closed window and irregular and careless habits spell danger to those who can command most favourable conditions. The germs of tuberculosis are so widely distributed that the seed is ever present to take advantage of the soil favourable to its growth. Thus it is that tuberculosis takes its annual toll of life among rich and poor. But it is among the less well-to-do classes that the conditions which make for tuberculosis are at once most general and most aggravated. Bad housing, overcrowding, ill-ventilated and insanitary factories, workshops, work-rooms, and public buildings, poverty, fatigue, dirt, drink, ignorance of the simplest principles of hygiene, all contribute to the spread of tuberculosis.

Types of Tubercle Bacilli.

Three types of the tubercle bacillus are known: the human, the bovine, and the avian.

The human type of bacillus is the chief cause of tuberculosis in man. Consumption, or tuberculosis of the lung, is almost invariably due to this type of organism.

The bovine bacillus is the cause of tuberculosis in animals, notably in cattle and pigs. Taken into the human body, it can produce tuberculous disease. Children are especially susceptible to this form of infection.

The avian type of tubercle bacillus is the cause of tuberculosis in birds, but so far as is known does not produce disease in man.

The Sources of Tubercle Bacilli and their Mode of Entry into the Body.

Persons suffering from tuberculous disease are the source of bacilli of the human type. The bacilli are contained in countless numbers in the discharge from tuberculous disease; for instance, in the expectoration of a consumptive suffering from active disease. The organisms are incapable of independent motion; so long as discharges, sputum, &c., in which they are contained, are moist, the bacilli are fixed; but as the containing medium dries, the bacilli are

liberated, enter the air, and thence are scattered hither and thither. Fresh air and sunlight destroy the bacilli; but where dirt, stuffiness, and lack of sunshine prevail, vitality may be retained for a long time.

Bacilli gain access to the body through the respiratory organs, entering along with the breathed-in air, or through the alimentary canal, being introduced by food infected with the organisms.

Cattle suffering from tuberculous disease are the chief source of the bovine tubercle bacillus. This organism is introduced into the body in milk and various milk products, such as butter and cheese. Ten per cent. of the milk on the market contains tubercle bacilli. Pigs, and to less extent sheep, are also sources of bovine bacilli.

Paths of Infection.

By what route and in what way tubercle bacilli most commonly enter the human body is a matter of controversy, so too is the precise track by which the bacilli travel to various organs such as the lungs. Neither is it known how long infection with the bacilli may precede the onset of tuberculous

disease. Whatever may be the truth on these points, the important fact remains that the ultimate sources of the infecting agent are persons and animals suffering from tuberculosis.

Manifestations of Tuberculosis.

The signs and symptoms of tuberculous disease are best grouped under the heads Constitutional and Local.

General or constitutional symptoms result from the entrance into the circulation of poisonous products termed toxins. Toxins are produced by the action of the bacilli at the site of the disease, but entering the blood, they exert a widespread effect. The evidence of this constitutional poisoning, or systemic intoxication, as it is termed, is constant whatever part of the body may be the situation of the disease. The most characteristic of the symptoms are fever, loss of flesh, night sweats, quickened pulse, anæmia, debility, fatigue, and indigestion. In the later stages of the disease, there are usually grave degenerative changes in many essential organs, for example, in the heart, liver,

kidney, intestines, &c. These changes in turn give rise to further constitutional symptoms which, collectively, are to be recognised by a more intense degree of emaciation and exhaustion.

Locally the action of the tubercle bacilli produces inflammation, the manifestations of which, as with inflammation due to other causes, are pain, swelling, and heat. Should the inflammatory process not be checked, there follows a softening and destruction of the affected part, giving rise to pus; more commonly spoken of as "matter." This pus contains the tubercle bacilli. Enclosed within an abscess or in a joint, pus cannot, of course be seen, although its presence can be detected by expert hands. Should the abscess break, the contents escape; the wound is then said to be discharging, and the pus is spoken of as "discharge."

These changes taking place in any structure of the body interfere with or destroy its natural function. Not infrequently, therefore, in addition to the signs and symptoms just enumerated, there are indications of disease resulting from the local

damage. These indications, naturally, vary with the part affected.

Forms of Tuberculous Disease.

There is scarcely a structure or organ of the body in which tuberculosis may not be met with,

Tuberculosis of the lung (Pulmonary tuberculosis), generally termed consumption.

The local symptoms of consumption are cough, usually accompanied by expectoration, and shortness of breath. Spitting of blood (hæmoptysis) also is not uncommon. The general symptoms, common to all forms of tuberculous disease, have already been referred to. Consumption, when well-established, is recognised without difficulty. On the other hand, its early manifestations are so slight and their onset so insidious that consumption in its initial and most curable stage is often overlooked or unsuspected. It cannot be too widely known that increasing lassitude, failure of appetite, progressive emaciation and loss of capacity for work and enjoyment, especially if associated with a cough, constitute a group of symptoms which suggest tuberculosis. Expert examination is needed before a correct

judgment can be arrived at. It is of importance that medical men be able to detect early tuberculosis. No less desirable is it that the general public be familiar with the indications and significance of commencing tuberculous disease.

Tuberculosis of the larynx, usually produces hoarseness, and in its later stages, pain and difficulty in swallowing. This affection is commonly associated with advanced disease of the lungs.

Tuberculosis of glands (adenitis). The glands of the body are often the seat of tuberculosis. The glands on either side of the neck are a common site. Many degrees of this condition are met with from a trifling swelling of a single gland, to a large mass, or a chain of irregular swellings extending the whole length of the neck. Puckered scars in this situation usually indicate old tuberculous disease.

Tuberculosis of the glands in the abdomen (tabes mesenterica) is often met with in children. It is characterised by the usual constitutional symptoms, wasting, weakness, &c., the local signs and symptoms being

swelling of the abdomen, pain, and the presence of hard masses to be felt on pressure.

The glands in the thorax, chiefly at the roots of the lungs, also, are frequently infected. This condition is only to be recognised by the trained observer.

Tuberculosis of bones and joints. All bones and joints are subject to tuberculosis. The disease is frequently met with in and about the hip, knee, ankle, shoulder, elbow and wrist joints, and in the vertebræ (caries of the spine). Hunchback results from spinal tuberculosis. In all these situations, the disease causes pain, swelling, and impairment of movement. When these signs and symptoms exist, in the absence of any well-defined cause, such as injury, and especially if the condition has come about gradually, tuberculosis should be suspected.

Tuberculous meningitis is a form of brain fever caused by tuberculosis of the coverings of the brain. It is one of the most fatal forms of tuberculous disease. It is a frequent cause of death of infants and young children, the source of infection, in some instances,

being a consumptive parent. In adult life, meningitis most usually occurs as a terminal sequel of pulmonary tuberculosis.

The Genito-urinary organs, namely, the kidney, bladder, &c., the alimentary system, more especially the intestines, and the skin (lupus), are all liable to tuberculous infection. The disease in these various regions presents certain characteristics which need not be specified. To the layman, the constitutional symptoms should point to the possibility of tuberculosis.

The Treatment of Tuberculosis.

Tuberculosis is most amenable to suitable treatment. When limited in extent and in its earliest phases, the disease is curable in a high degree. On the other hand, when the local damage is severe or extensive, or the constitution gravely undermined, complete recovery cannot often be looked for. Even under such conditions, however, alleviation of symptoms and prolongation of life can usually be expected. When treatment is not thorough, and cure not absolute, there is risk of recurrence after a seeming complete recovery.

Principles of Treatment.

The objectives of treatment are (1) to overcome the ultimate causal agent, the tubercle bacilli ; (2) to make good the inroads, local and constitutional, affected by the bacilli, and (3) to eliminate the conditions which, by undermining resistance, predisposed the patient to tuberculosis.

Local Treatment: the Removal of the Bacilli.

When the parts affected are accessible, they can sometimes be dealt with satisfactorily by the surgeon ; for instance, the diseased parts along with the contained bacilli, may be removed and the way paved for complete or a radical cure. A joint, a bone, or an organ, such as the kidney, or tuberculosis of the skin, may thus be dealt with and the focus of disease entirely got rid of. When practicable, surgical procedures are satisfactory, in that they represent treatment by direct attack.

General Treatment.

As described previously, the body when in normal health, on being invaded by disease-

producing organisms, is capable of certain vital responses, whereby the infecting agents are rendered inert or destroyed. The existence of tuberculous disease is proof that this natural means of defence or immunity has broken down. If the natural resistance be re-established, there is hope that the body may recover its lost ground, and by its own efforts destroy the invading bacilli. Measures directed to this end constitute a valuable, though relatively indirect, method of treating tuberculosis. They are always employed to supplement the more direct method of treatment adopted by the surgeon. When, however, as is the case with tuberculosis of the lung, the disease cannot be removed by operation, general measures of treatment have to be relied upon solely. Hence the great importance of this form of treatment.

The principles of general treatment are : abundance of fresh air, sunshine, nourishing and digestible food in sufficient amount, freedom from fatigue and worry, sleep, rest, exercise, recreation, mental and physical, in accordance with the body's needs, and regular habits, but short of monotony.

Sanatorium, or open-air treatment, consists of the systematic application of these principles. The sanatorium is so planned that day and night the patients live in fresh air, and during the day secure to the full the benefits of the healing properties of sunlight. Meals are regular and generous. Methodical habits and early to bed are the rule. Absolute rest in the recumbent position is a prominent feature. Patients who have symptoms of active disease rest for the entire day; even the most convalescent rest for an hour before the mid-day and the evening meal. Exercise is another essential, but it needs to be carefully regulated, in respect both of amount and character, until health is in a large measure restored. Medicines play a minor part, being used chiefly for the alleviation of symptoms. Sanatorium treatment, thus, is merely a well-ordered life under ideally healthy conditions; a highly-organised combination of the usual convalescence measures. The open-air treatment can be carried out anywhere, more satisfactorily of course, in the country than in the city, and with greater efficiency by those who have received practical instruction in a sanatorium.

The Limitations of General Measures.

As a cure for tuberculosis, general measures have marked limitations. The stay of the progress of tuberculous disease does not signify that the bacilli have been rendered incapable of further mischief. When the area of disease is quite small, the vital processes previously alluded to, are indeed able completely to eliminate the bacilli and their products, the result being absolute cure. But when the diseased process is more advanced, this relatively rapid and complete recovery is not possible. Under these circumstances, the natural process of cure consists, in the first place, of the building up of scar tissue on the confines of the disease, so that in time the damaged parts are walled off. The area of the disease, together with the bacilli, are then contained by a barrier of dense scar, much as a nut is contained within a nutshell. In course of time, the bacilli thus isolated lose their vitality, and ultimately become inert or die. When tuberculous disease is incapsulated in this way within scar tissue, it is termed "arrested." It is a tedious business thus to cure tuberculosis. Months, even

years, may elapse before complete arrest can be assumed, and throughout all this period the body machine must be maintained at its highest efficiency. Long views must be taken and great patience exercised when treating tuberculosis by general measures.

Further, when the disease is arrested, the position is none too secure. The tubercle bacilli, though interned as it were, remain alive for a long time, how long it is impossible to say, but certainly for years. It but needs for the scar barrier to break down, for the bacilli to be liberated and the disease once more to become active. For the maintenance of "arrest" one has to rely upon the measures by which this stage of cure was effected, namely, a healthy well-ordered life.

This brief description of the natural cure of tuberculosis will assist the reader to understand why it is that once tuberculous disease is firmly established, recovery is difficult to encompass by general measures unaided. The lesson to be drawn is that everyone who suffers or has ever suffered from tuberculosis should seek to embody in their lives the essentials of sanatorium treatment. The voluntary worker becomes familiar with many

obstacles to the realisation of this ideal. To show how difficulties may be met is to render a patient a real service.

Special Measures.

There are no specific means of treating tuberculosis in the way of drugs, inoculations, &c., comparable in efficiency with, for example, quinine, in the treatment of malaria, and the salvarsan compounds in the treatment of infection with the *Spirochæta pallida*. As yet, no drug nor remedy has been discovered by which the tubercle bacilli within the body can be rendered harmless or destroyed. This is a great handicap in dealing with tuberculosis. However, various medicines may usefully be employed in conjunction with general measures, for example, tonics and drugs to assist digestion. Cod-liver oil also has a beneficial effect. Inoculation with a substance called tuberculin, which is in the nature of a vaccine against tuberculosis, exerts a favourable influence in some cases, more especially in surgical tuberculosis. But tuberculin treatment is uncertain in its effects and not without danger; so that its sphere of usefulness is restricted.

Prevention of Tuberculosis.

Though appealing less to the sympathies and interest of most people, the prevention of tuberculosis is perhaps of even greater moment than the cure of the tuberculous. Prevention and cure, however, are intimately associated.

The Principles of Prevention.

In the treatment of the tuberculous patient, the aim is to get rid of the bacilli and to increase the capacity for resistance. The same principles hold good in the prevention of tuberculosis.

The Removal of the Infecting Organisms.

The control of the chief sources of infection, namely, human beings, is a matter of extraordinary difficulty. Some have advocated the segregation, under humane conditions, of all persons who can be shown to be discharging tubercle bacilli. Such a drastic measure is not practicable. However, an approach can be made to this conception. Institutions for the care of patients suffering from the more advanced and terminal phases of tuberculosis afford safe refuge to many sources of infection. Sanatoriums and chest

hospitals remove for a time from the community a large number of persons capable of spreading the disease. But the great mass of the tuberculous population are to be found outside institutions, living in their own homes, many of them following their wonted occupation. It is with this section of the population that responsibility chiefly rests in connection with the diminution of tuberculosis. To check the spread of tuberculosis from man to man, we must rely upon an increased sense of responsibility on the part of the tuberculous. Education is a most potent force; education of the patient as to the measures he should adopt; of the public as to the safety which their fulfilment confers. Happily, tubercle bacilli are readily destroyed outside the body. Dressings from a tuberculous wound are best burnt. The consumptive should collect and destroy his sputum. During the day he should carry a sputum flask or a small wide-mouthed bottle fitted with a rubber stopper; at night a mug serves the purpose. In either case, the receptacle should contain some germ-destroying substance, such as Jeyes' Fluid or carbolic acid

solution (1 in 20). The whole contents can then safely be emptied into a drain or buried deeply in the ground or burnt. All receptacles for sputum should be washed thoroughly every day in boiling water to which a little washing soda has been added. It is not desirable to use handkerchiefs and pieces of rag or paper for the collection of sputum. When this is done, however, the articles used should be carried in an india-rubber bag so that the contents can be destroyed and the bag washed. During cough, a handkerchief should be held before the mouth. The swallowing of sputum is a dangerous practice, since it may give rise to tuberculosis of the alimentary tract. Food utensils, cups, plates, cutlery, &c., used by a consumptive should be washed in boiling water. Close contact with the consumptive should be avoided. For instance, a patient should not share a bed. The rooms frequented by a tuberculous patient should be furnished simply, and kept scrupulously clean; curtains, drapery and ornaments are best removed. Free ventilation and the regular use of soap and water reduce greatly the risk of infection.

The control of infecting material from animal sources is more possible of attainment. It is to be accomplished by an efficient supervision of the supply of meat, milk, and all derivatives of milk.

The Raising of Resistance to Tuberculosis.

Side by side with the control of the sources of tubercle bacilli everything possible should be done to raise the resistance of the general population. Measures which remove the predisposing causes to tuberculosis referred to in an earlier section are the most powerful agents in prevention. An immense deal remains to be done in this direction. More than any one measure, fresh air protects against tuberculosis. The simple and effective means to health, the open window, is widely ignored by all classes. The free circulation of air should be recognised as a prime necessary of life. There should be no stuffiness in nurseries and schools. Light and circulation of air should be demanded in workshop, workroom, offices, and all places of business, no less than in the homes, and in all places in which people congregate under a common roof. Cleanliness, also, is a safeguard greatly

neglected. Good food, temperance, exercise, and sleep, all contribute to the maintenance of health, and directly to prevention against tuberculosis. But it is not enough that the public be informed on these points. It should be possible for everyone to put the knowledge to practice. Social reforms which tend to raise the general standard of living contribute to this end. The supervision of especially dangerous trades, the regulation of hours of labour, the abolition of sweating in industries, the insurance against sickness and unemployment, the removal of insanitary buildings, schemes for better housing, cheaper food, and education are, to mention a few measures, invaluable aids in the protection of the community from tuberculosis.

The Anti-Tuberculosis Administration.

The Ministry of Health is the central government authority in health matters. This department initiates new measures and co-ordinates the work of many bodies concerned one way or another in the maintenance of national health.

Locally, specially created bodies, the local health authorities, are responsible within their

respective areas, for the administration of all public health measures. The Medical Officer of Health is the principal officer of the staff under the jurisdiction of local authorities.

A comprehensive anti-tuberculosis scheme comprises many units. Certain of them deal with the more general aspect of the question, such as the notification of all cases of tuberculosis, the inspection of food supplies, the disinfection of houses and clothes, the control of insanitary buildings, &c. The units more directly concerned in the treatment of tuberculosis are: the General Practitioner; the Dispensary; the Tuberculosis Officer, with the associated Nursing and Clerical Staff; the Sanatorium; the Hospital; the Home for Advanced Cases; the Open-air School; Day Sanatorium, and School Medical Service; the Colony; and the Care Committee Organisation.

The General Practitioner.

The General Practitioner is concerned more than anyone else in the treatment of tuberculosis. For although the tuberculous patient passes through the hands of the dispensary, the sanatorium and other institutions,

it is upon his ordinary medical attendant that he depends chiefly for guidance. It is the general practitioner who has the best opportunities for detecting early tuberculous disease, and for urging the necessity for its immediate treatment.

The Dispensary and the Tuberculosis Officer.

The activities of the dispensary are many-sided. The officer in charge of this unit devotes his whole time and energies to the study of tuberculosis. In virtue of his special training and experience he acts as a consultant to the practitioners in his area. He assists in the elucidation of cases of suspected tuberculosis and advises as to the treatment of patients referred to him. He is in touch with every case of tuberculosis within his district and is familiar with their home and working conditions. By means of his visiting staff, the tuberculosis officer co-operates with practitioners in the treatment of patients and in the instruction of households in all that they should know as to the prevention of infection. The examination of "contacts," namely, those who are in constant association

with the patient, is another duty of this officer. Not infrequently systematic search for tuberculosis leads to the detection of unsuspected disease.

The Hospital.

A suitably equipped and staffed hospital is indispensable for the reception of patients who are acutely ill, and for cases needing surgical treatment. Suspected and doubtful cases of tuberculosis also are most satisfactorily observed in a hospital.

Home for Advanced Cases.

Provision is needed for chronic and advanced cases which are no longer capable of work and cannot be looked after in their own homes. This class includes patients who may be termed correctly, dying cases, and others who, though advanced, may improve sufficiently to warrant admission to a sanatorium. It is desirable thus broadly to interpret the term "advanced cases," since to restrict an institution for the admission of dying cases gives it a reputation which detracts from its usefulness. An element of hope should be retained.

The Colony.

Colonies closely resemble sanatoriums in their aims, arrangements and administration. They differ chiefly in that the Colony is equipped for the instruction of patients in various trades and callings likely to be of service to them as a means of livelihood. Training being so prominent a feature, residence is prolonged, and admission limited to those who on medical and temperamental grounds appear likely to profit from the education given. The Papworth colony in Cambridgeshire is exceptional in that it provides for the permanent settlement of a certain number of patients with their families, subsequent to training, remunerative employment being furnished by industries established in the institution. At Papworth there is no selection of cases upon medical grounds.

The Open-air School, Day Sanatorium and School Medical Service.

The open-air school provides education and a healthy school environment for children who show evidence of tuberculosis or whose weakness of constitution renders them susceptible to this infection. The treatment of

both conditions is usually most satisfactory. The systematic examinations made by school medical officers bring to light many cases of incipient tuberculosis.

The Sanatorium.

The sanatorium is so planned and organised that general measures of treatment may be carried out with the maximum efficiency. At the present time, treatment in a sanatorium is the best remedy for consumption at our command. As mentioned earlier, it is the patients suffering from early manifestations of the disease that furnish the greater proportion of recoveries after sanatorium treatment; it is for this class of case that the sanatorium is pre-eminently suited.

Care Committees.

These bodies, composed for the most part of voluntary workers who are in touch with the social life of the people, co-operate with the official administration in anti-tuberculosis work. The interests of a Care Committee are focused chiefly upon the personal and family circumstances of tuberculous persons. In the education of the household as to the treat-

ment of the disease, and the prevention of infection, in the adjustment of financial and other difficulties, in the search for suitable employment, and by keeping in touch with patients when living at home, a Care Committee can render great assistance. In the furtherance of their work, a Care Committee must needs be closely associated with agencies, official and voluntary, concerned in social welfare. For example, the C.O.S. and Council of Social Welfare, War Pensions Committees, Soldiers' and Sailors' Families Association, Maternity and Child Welfare Centres, Invalid Children's Care Associations, Boards of Guardians, Insurance Committees, and local, charitable and religious bodies. Medical practitioners and representatives of local employers and labour bodies should be co-opted to the Committee.

The sickness visitors of the large friendly and approved societies should also be represented. These officers are in constant touch with many sick persons among the industrial population and are familiar with their home conditions. Incidentally, too, sickness visitors are able, from time to time, to

recognise tuberculous disease when unsuspected, and to put the patient in touch with the local Tuberculosis Dispensary.

In some areas Care Committees undertake the assessment of contributions to be made by patients or their relatives towards the cost of treatment provided by public bodies.

Some aspects of the work of a Care Committee are referred to in more detail in a later section.

Tuberculosis in Relation to the Social Life of the Country.

Tuberculosis is a profoundly disturbing influence in the social life of the nation. Attacking the child, tuberculosis interrupts the normal course of education and vocational training. These circumstances spell, as a rule, to the affected child, a life-long handicap as a working and productive member of society. The future of young adolescent life is similarly prejudiced by tuberculous disease. In adult life, tuberculosis exerts an even more disastrous influence; the circle of its ill consequences is larger, for the sufferer can rarely avoid the engulfing of others in his misfortune. Naturally, there are wide variations in the

degree of social disturbance that may centre round a case of tuberculosis.

Illness of the chief or sole wage-earner is a strain upon the resources of a dependent household. To many, a long spell of ill-health opens up a vista of impoverishment, perhaps of actual poverty. Not much less serious is the loss of the woman of the household, the mother of a family. Disablement of either one or the other strikes at the foundations of family life. This is seen most conspicuously among the industrial classes. The sequelæ of straitened circumstances are too familiar to need detailed reference. Malnutrition, insufficient clothing, overcrowding, and worry tell with damaging effect upon all, but in particular degree upon children. The early sapping of the constitution of the child is a fruitful source of illness in later life. With continued poverty is almost invariably associated a lowering of social status, the demoralising influence of which taxes the strongest character. Self-respect lost, material ruin is a near step. This train of social disaster and disintegration finds illustration in numberless homes disorganised by the occurrence of tuberculosis.

Tuberculosis, a Medical and Social Problem.

Unless a specific remedy is discovered, or great changes take place in national life and habits, the prevention and treatment of tuberculosis must continue to depend upon the co-operation of the medical profession with workers in the field of social betterment. The humbler the stratum of society the greater the need for social service. It is obvious that, as compared with the industrial population, the more well-to-do classes stand a better chance of resisting tuberculous infection, and of recovery, when their immunity has been broken down. This inequality must be bridged if the treatment of the tuberculosis worker is to meet with more success than hitherto. The levelling up of the conditions of the wage-earning classes lies fundamentally in the province of social reform. Legislation, though it may contribute much, can never cover the whole ground. Voluntary service and philanthropic effort are needed to supplement official action.

The Functions of a Care Committee.

The functions of a Care Committee are more easily outlined than defined precisely.

As the name implies, care is the keynote of the work, care of the sick person, of his dependants, and less directly, of the general community. The range of the Care Committee is of necessity thus comprehensive. To render effective assistance, a Care Committee must be conversant with the needs and circumstances alike of the patient and of his household. Social measures, therefore, are all based upon a study of the family. The interests of all must be considered, not only that of the patient. The greatest good to the largest number is a working maxim. The steps adopted should be constructive, not merely palliative. The essence of care work is to preserve the family as an independent self-supporting unit.

The difficulties of the consumptive centre round questions of money, employment, and housing.

Money.

Financial worries harass the consumptive throughout his career. To give a few examples only: Take the case of a working man with a family. However favourable the prospects of recovery, he cannot go away to a sanatorium

because his dependants, deprived of his wage, will be unable to live. Or having been persuaded to make the sacrifice and give up work, he continually frets about his family and returns home. Both actions are a common prelude to disaster. Again, it constantly happens that the consumptive, though improved by treatment, is not fully restored to his former working capacity. His income is reduced permanently; perhaps he will never again earn his living. There are numberless ways in which financial embarrassment arises.

The Adjustment of Financial Troubles.

The first step is to ensure that the patient and his family have a living income. The resources of the household should be ascertained, and its minimum needs determined. By the preparation of an approximate weekly budget, any obvious deficiency is made apparent. This procedure is not simple to the inexperienced. The wages of members of the family or other sources of income may not be disclosed; again, assuming the assets to be stated faithfully, it is often difficult to arrive at the minimum essential expenditure. Fluctuations in the cost of living further

complicate matters. Help may be obtained from scales of the minimum needs of families of various sizes and composition, issued from time to time by the C.O.S.* and from the reports upon the cost of living published periodically by the Board of Trade. The State allowances to dependants of ex-service men under treatment in institutions are a further useful guide. Further information on this subject is to be found in the report of the Committee appointed to enquire into and report upon the increase in cost of living since June, 1914.†

The Remedying of Insufficient Income.

A household suddenly deprived of its principal wage-earner can often be maintained by the work of other members of the family. With fully insured persons, sickness and disablement benefits‡ give a basis on which to build. In the case of ex-service men in receipt of pensions there is a better financial

* The Charity Organisation Society, Head Office: Denison House, Vauxhall Bridge Road, S.W.1.

† Published by H.M. Stationery Office, 1918.

‡ Sickness benefit for men is 15s. 0d. a week for 26 weeks, subsequently 7s. 6d. a week. Sickness benefit for women, 12s. 0d. a week, subsequently 7s. 6d. a week.

foundation. A common expedient is for a wife to obtain employment. Many married women have a knowledge of some trade or business. A Care Committee can help them in the search for employment. The wages of a wife supplemented by sickness benefit will in many cases go far to restore financial equilibrium. However, the wage of a woman is invariably lower than that previously earned by her husband, so that there is usually a deficit to be made up. Employment of married women has its disadvantages; children and homes are apt to be neglected. Matters may be improved by providing daily help in the house or by arranging for the care of the children. Older children and any other members of the family should be reviewed in the hope of employment, or if already at work, a better wage being found for them. Enquiry may elicit sources of assistance from relations. The expenditure of the household also should be looked into as economies may be effected. It is a good plan to reduce the number of a household. The removal of a patient to an institution eases the situation and, incidentally, often

remedies overcrowding. Or children may be placed with relations or in homes. The removal of a family to a cheaper house is a bad means of reducing expenditure. When these various measures, based upon the principle of self-help, fail to meet the emergency, resource must be had to less satisfactory means. Financial help must be obtained. Every medium of charity must be considered. An employer will often help a satisfactory servant. The various religious denominations, trade societies and clubs can often be counted upon for assistance to one of their body. The C.O.S. and other philanthropic organisations are an invaluable asset. Assistance in the shape of extra nourishment for a patient may be obtained from Insurance Committees. When the recipient is one of a household in much reduced circumstances, a small contribution of food is of little avail. Everything else failing, appeal can be made to the Guardians.

An acute financial crisis with prospect of termination within a few months is a more favourable proposition than impoverishment the cause of which is not likely to be remedied.

The loss of earning power of the chronic consumptive comes within the latter category. The best remedy, though a difficult one, in the case of the partly disabled, is to find the patient work.

Occupation.

A Care Committee should consider the suitability of the employment of every patient referred to them. The ideal employment is one which gives a constant and adequate wage, regular hours, freedom from excessive effort, and plenty of fresh air. Few occupations offer all these advantages. An employment may be intrinsically unsatisfactory or unsuitable only in consequence of the conditions under which it is carried out. A return to a usual occupation means the maintenance of a customary wage; a matter of great moment. A recommendation to change an habitual occupation should not be given until the possibilities of the resumption of usual work under satisfactory conditions have been explored. An employer can often improve the prospects of an employee by giving him a change of duties; *e.g.*, a ware-houseman or a draper's assistant may be put

on to the travellers' staff, or the patient may be given a light post such as time-keeper, messenger, liftman, watchman, &c.; or again he may be transferred to a country branch. A modification of duty under a usual employer is less disturbing and less prejudicial to income than complete change of occupation. Patients are usually reluctant to approach their employers for fear of being thought unfit for work. An employer can also confer a benefit upon an employee by allowing him to work for shorter hours, either for a time or permanently. This arrangement is not favoured by employers. In many trades and businesses, however, the principle of a reduced working day is quite feasible; I have seen it adopted with the best results by banks and business houses. Some loss of wage must often be faced. If this be severe, it may rest with a Care Committee to find a remedy. The *Cambridgeshire Care Committee has organised a scheme of subsidy to patients engaged in part-time employment, the funds being derived from private subscriptions, and contributions from Insurance

* *Lancet*, November 24th, 1917.

Societies. It may be added that an insured person engaged in any form of remunerative work is not entitled to sickness benefit. Insurance Societies, however, are permitted to give a donation to an organisation which assists insured persons employed for part-time only.

When a return to a usual place of employment cannot be entertained, search for a new situation should first be made in the neighbourhood of the patient's home; there is general reluctance to move to a new district. A Care Committee should, through its various members, be conversant with the industries of their district. When this personal knowledge is lacking, labour exchanges and occupation bureaux may give helpful information; the advertisement columns of the local and general press also should be consulted. It is often advisable to look further afield, for instance, to give the urban dweller a new start in a rural district. In the case of occupations which can be followed as well in the country as in the town, a good deal may be effected in this way. Clerks, school-teachers, shopkeepers, railway employees,

and those engaged in many trades may be placed suitably. Personally directed enquiry is best, but the insertion of advertisements in papers circulating in rural districts is sometimes successful. When satisfied as to character and capacity, a grant to enable a patient to go away in search of work is sometimes a good investment. If a situation is found, the cost of the removal of a family may be a difficulty for a Care Committee to surmount. Under any circumstances there is more chance of success if a patient be fully convalescent and obviously fit for work. In such case, it is well for a patient to apply for a situation in person, even if the opening be found for him. To be known to a prospective employer as one who suffers or has suffered from tuberculosis does not favour a patient's chances.

Change of Employment.

Few people accustomed to a skilled or relatively skilled calling can adopt a new occupation without loss of income. There is no substitute for thorough training and experience. A patient's physical requirements are not easily harmonised with the mainten-

ance of economic independence. When considering possible occupations, it must be borne in mind that no new arrangement is sound that fails to guarantee the patient and his dependants, if there be any, a fair living. It is not essential that the new employment provide fully the necessary income so long as by some means or other adequate maintenance is secured. It is only possible to indicate the kind of work which should be considered; so much depends upon the personal equation of the patient and the degree of disablement. Among the light and more open-air employments are those of commissionaire, lift-attendant, messenger, checker, time-keeper, porter, lamp-lighter, road-minder, window-cleaner, attendant on trains and book-stalls, park attendant, agent, collector, and canvasser of all kinds, cart and van driver, chair attendant in parks or at seaside, postman, chauffeur, golf-caddie, caretaker, and hawker. I have known men satisfactorily placed with the Automobile Scout Society as road scouts. For women and girls, domestic service and dressmaking under favourable conditions, should be considered.

Many of the above-named occupations are of a blind ally character, and require little expert knowledge. In consequence, the wage they command is often small, and not such as appeals to a skilled man accustomed to a good income. A patient who is his own master, such as a hawker, or a small shopkeeper, is better placed than one who is tied to stated hours of labour.

For patients who are still capable of work but unable to follow the usual industrial hours, something tangible has been done in various parts of the country by fostering home employment. This is most practicable in districts where the staple trades give opportunity for home work. Inadequate accommodation, as an obstacle to home work, has been met with in some areas by the provision of a shelter or shed for the worker or group of workers. This plan is an approach to a work centre for the tuberculous. A centre on these lines exists in *New York; in this country, similar propositions have been discussed but, as yet, have not been subjected to experiment.

* "Report of Care Committee for the Jewish Tuberculous in New York," 1917.

Vocational Training.

Much has been attempted in the way of teaching tuberculous persons an occupation likely to fulfil their requirements. Motor driving, bicycle repairing, boot-making and repairing, clock and jewellery repairing, sign-painting, carpentry and cabinet work, electric wiring, painting and glazing, toy-making, leather work, the lighter kinds of metal work, among men, and in the case of women, domestic service, dressmaking and embroidery, are among the trades that have been taught. Training for the land has also received a good deal of attention, horticulture, fruit and vegetable growing, poultry farming, &c. Most experiments of this character can show individual successes; in the aggregate, the results have been disappointing.

As a general principle, it is not economic to instruct the partially-disabled in trades which require a long apprenticeship or in which those engaged are exposed to keen competition. Training in one of the more specialised trades is suitable chiefly for younger patients. Married persons can rarely afford to consider a training, the maintenance of dependants during

the unremunerative period of education being the obstacle. Moreover, to anyone still in the enjoyment of good health, even though tuberculous, the temptation to return to a certain wage rather than embark upon a venture is usually irresistible. Hence the difficulty experienced by Training Colonies reserved exclusively for the early and apparently cured cases to obtain satisfactory candidates. In the case of ex-service patients there is no real difficulty on the head of finance.

In the choice of a training, due regard must be made to the aptitude and inclinations of a patient. In most cases, a trade or handicraft is more likely to be of use as a means of livelihood than some knowledge of an agricultural calling. It is only exceptionally that a patient can be placed successfully upon the land. The work is too heavy and too skilled. Early cases among the younger patients with a real inclination for a country life are most likely to make good in an agricultural occupation.

As to facilities in training in crafts and trades: While instruction of an elementary character is obtainable in several institutions,

this is quite inadequate to give a technical mastery of a skilled trade. The future may see an improvement in this respect. In the meantime, training is best obtained at trade institutes, polytechnics, technical schools, &c. Or arrangements may be made for apprenticeship in the ordinary way. Useful information as to the prospects and training facilities in various trades is to be found in a series of pamphlets published by the *Government. Instruction in various forms of work on the land is more easily arranged, since many sanatoriums and allied institutions provide for a certain measure of training in agricultural occupations. But here, again, from a professional standpoint, the instruction is usually of a preliminary character. To qualify anyone as a skilled worker, it must be supplemented by further and more intense instruction or by experience gained as an assistant. There are a few institutions especially equipped for training in agricultural and allied occupations. For the particulars and conditions of admission to these farms and agricultural training colonies

* "Reports upon Openings in Industry prepared by Trade Advisory Committees," H.M. Stationery Office, London, 1d. net.

application should be made to the Ministry of Health, Whitehall, Westminster.

Not much can be expected of the re-education of the more advanced cases. Poor health is a bar to a thorough training ; nor can the partly disabled make up for lack of skill by longer hours or greater application. None the less, it is worth while to give the more advanced cases which cannot be otherwise employed, such training as their condition permits. This is best done in sanatoriums. Whatever be the condition of the patient, training is of infinitely more value if it can be associated with the promise of subsequent employment. Especially is this true, if, in addition, the stress of competition can be eliminated. Training schemes which are not associated with some provision for subsequent employment, are of limited use. At Papworth Colony, a power-manned factory for the production of standardised furniture has been installed, in which patients work under supervision and when trained, receive Trades Union rates of wage. There are also some subsidiary trades on a smaller compass. The village settlement scheme at Papworth has been referred to previously. The results of

this, the first experiment on the lines of subsidised employment will be of much interest. Another attempt upon a small scale to combine training with permanent occupation is to be seen at Kinson, near Bournemouth, where the Y.M.C.A. are carrying out an experiment in training and settlement on small holdings. By arrangement with the Board of Agriculture, holdings of two to five acres with house, on land adjoining the training farm, is offered to tuberculous ex-service men who, on completion of training, are of a required standard in respect of knowledge and physical fitness. It is proposed to deal with twenty selected men only. Nine holdings are now occupied, further men being under training. The results of this work will also be instructive. In the absence of more experience of schemes for training plus settlement, no data are yet available as to their cost and other important particulars.*

*For further information upon this subject see Report of Inter-Departmental Committee (Sanatoriums for ex-Soldiers). H.M. Stationery Office, 1919; also "Industrial Colonies and Village Settlements for the Consumptive," by Woodhead and Varrier Jones. Cambridge University Press, 1920. Pp. 152. 10s. 6d.

General Advice to Patients as to Treatment.

Apart from advice as to finance and occupation, there is much that the social worker can do to help a patient and to safeguard his dependants. The principles of sanatorium treatment can be explained, and hints given as to their application. The living and sleeping arrangements should be looked into. The patient should have a separate room or at least a separate bed. A loan or gift of bed and bedding may be needed. Stiffness arises, partly from desire for warmth; advice as to clothing should accompany insistence upon more air. Windows may require attention before they can be opened properly, or a blocked chimney may interfere with ventilation. Definite structural defects or insanitary conditions should be reported to the Tuberculosis Officer for notification to the proper authority. In rural and suburban areas a shelter will be found a great convenience. Simple instruction in the relative value and cost of foods and in cooking is a help in many cases. The taking of patients to and from their homes and institutions, and the arrange-

ment for the examination of "contacts," are other duties which can be carried out by voluntary workers.

Many patients are ignorant of the administration of the Insurance Acts, Pensions Committees, the Poor Law, and other public bodies. A voluntary worker should be able to give information upon these heads. In the case of tuberculous children, visits are useful to see that treatment is carried out; for example, that meals are given regularly when the mother goes out to work. Regular visiting encourages a patient to persevere with treatment, and checks the inevitable tendency to slacken effort. Moreover, the visits maintain touch between the patient and the tuberculous administration. No tuberculous person should be lost sight of. The treatment and after care of tuberculous women is constantly ruined by the bearing of children. The duties of the social worker call for tact. The first necessity is to gain the patient's confidence. The status of the visitor should be that of a friend, not that of an official. Enquiries should not be pushed beyond what is needed for the elucidation of any case. The point

of view of the patient should not be lost sight of. The desire not to be branded as a consumptive should be respected. Character and temperament should be taken into account before tending advice, and allowance made for shortcomings. Ignorance, prejudice, intolerance of discipline, tenacity to wonted habits, and excess in alcohol conspire to thwart the would-be helper. But in the worst environment, compensatory good qualities are found upon which a constructive policy may be based.

Care of the Tuberculous Child.

I am indebted to colleagues for the following useful hints as to the care of tuberculous children.

(1) *From a lady working for the C.O.S. in Paddington.*

The voluntary worker in an open-air school should recognise that she is part of a team composed of doctor, nurse, school-mistress, and voluntary visitor, all working for the health of the child. In practice there has been no difficulty in defining her work, which represents the commonsense and social side, as opposed to the medical, represented by

doctor and nurse, and educational, represented by the school-mistress. If the team does not work well together, it becomes her business to act as buffer and get things straight again. She should meet her three colleagues regularly. As only one member of the Care Committee can be present at the children's weekly medical inspection, she should make it her business to pass on the notes that refer to children specially known to other members of the Care Committee so that they also may be kept fully informed as to the doctor's wishes and directions.

At school, the children should have happy, peaceful days, free from fears; as far as possible, they should live like normal children. Their homes should be clean and bright; their care entrusted to a sensible, responsible mother, educated in the simple laws of health.

When a mother makes difficulties as to bringing up a child for treatment, the voluntary worker can often help the nurse to arrange matters. It is better for the child and for the whole family that a mother be roused to the sense of her responsibilities, rather than be relieved of them; she then

looks for the small things to be done in the home that no visitor, however zealous, could do; it is a matter of education. The same rule holds good in respect of sanatorium treatment. All sanatoriums send instructions as to the clothes required and trains to be taken. The mother will often want to talk over arrangements and may require suggestions as to how to get the clothes together, but she can manage to take the child to the station herself. Everything to do with the medical side of a child's care is centred in the doctor and nurse. Although it is interesting for the visitor to know what treatment is being adopted, she must bear in mind that two highly-trained experts in their different lines are dealing with the health of the child and that her services are not wanted in that direction.

In the school, it is the visitor's work to see that the governesses are suitable and make the children happy. She will soon hear from the home if things are going wrong—that the children cry and don't want to go to school. A normal child must take its chance. If it does not like the teacher in one class,

it will soon go on to another where the teacher is more congenial. But with delicate children no risks can be taken. Should all not seem well, the visitor must consult the Head Mistress and Managers and see what can be done to remedy things. Young bright teachers, with plenty of vitality, are the most successful.

The choice of games is limited ; so advantage must be taken of all it is possible to do and that the doctor allows. A cricket match at a cripple school, where no one runs, is still a cricket match, and sounds quite well at home. A great deal can be made of but a small garden. Girl guides and scouts, officered by someone who knows the children's limitations, visits to the baths with the doctor's approval, competitions in writing for children's magazines, and the running of a school magazine are all to be recommended. But above all, perhaps, getting the children to read and seeing that there are books in the school library.

Delicate children are often nervous and are almost obliged to hear too much about disease. They will catch up a chance remark and make themselves miserable ; often un-

necessarily. The visitor hears of this from home and without appearing herself can usually see the children are reassured.

Under the scheme just started by the London County Council of taking special seaside homes for these children, the visitor obtains from the doctor a list of children he wishes to go, secures the consent of the parents, and ascertains what they are prepared to contribute. She then reports to the Committee, and after assessment by them of the parents' contribution, collects this sum weekly.

With regard to the school dinners, it is the visitor's business to find out the reason for a debt notified to her by the school mistress; she ascertains whether the father is out of work, ill, or only shirking and careless, and reports to the Committee.

Having known the child in its school life, and by consultation with the mistress, the visitor should have a fair idea of the work the child is fit for. Through friends, she can often get it suitably placed. If a child has reached a fairly high school standard it may be dealt with by the Skilled Employment and Appren-

ticeship Committee. This is a great advantage, as the conditions under which a child will be working are then well known, and close touch will be kept with it during the early years of its working life. Should these methods not be practicable, the visitor should refer to the Secretary of the Juvenile Advisory Committee, explaining the child's limitations and requirements. A covering letter from the doctor will help matters.

On starting work, the children are advised not to attend evening classes; however, they generally join some class before six months are over. They are advised to keep in touch with their school guides and scouts in preference to joining some other corps which may not be run under such satisfactory health conditions. Finally, the importance of keeping in regular touch with the Dispensary is impressed on both mother and child. To enquire as to whether this is being done is the visitor's first question on making her after-care visits. The advice as to joining clubs depends upon the sort of home the children have to go back to after work is over.

In the home, the first business of the visitor is thoroughly to know the home of the child she is looking after and to have some acquaintance with every member of its family ; to be ready with suggestions and help as to employment for any member of the household, so that its financial stability be assured ; to be ready to act as nurse's understudy in enforcing cleanliness and fresh air ; to repeat nurse's advice as to ways of cleaning head and hair ; to remind the mother that when the doctor forbids uncooked fruit, it means not even part of an apple or orange ; to suggest menus and suitable food ; to try to substitute cocoa for much boiled tea, and to preach milk.

The nurse will have reported damp walls, unsatisfactory drainage, smoking chimneys and leaking roofs, but the visitor can give an eye to the dustbin, see if it is of a sanitary pattern, that it is not full of paper and cabbage stalks, and that it has a lid. She can deal with flies in summer and suggest that netting will keep cats from coming in at open windows. If the nurse does not make a speciality of sleeping accommodation, the visitor can see if it is possible to make improvements and suggest

where and how to get beds. A visitor is also often asked to give characters and to act as reference.

Speaking generally, the visitor is concerned in a number of small things, the successful accomplishing of which contributes to the success of the whole work.

(2) *From Sir Henry Gauvain, Superintendent of Lord Mayor Treloar's Cripple Hospital and College, Alton.*

The instructions already given apply to children suffering from the various forms of pulmonary tuberculosis, but a few special directions may be of assistance for the after-care of cases of non-pulmonary tubercle.

The majority of children discharged from hospitals after treatment for the various forms of non-pulmonary tuberculosis leave with splints or other appliances and in some cases, in addition, with crutches and patten. It is essential that the guardians of these patients should be sufficiently impressed with the importance of patients wearing the appliances provided. In certain cases the splints have to be worn constantly. In the majority of such cases, it is desirable that the appliance be

removed once daily and the skin underneath carefully washed and powdered to prevent it becoming sore. This operation should be performed with the greatest care and the appliance immediately replaced on the patient. Special attention should be given to see that the splint is fitting comfortably. In the case of a child rapidly growing, it is not uncommon for a splint to require adjustment or perhaps renewal before it is worn out ; for this reason, it is desirable for the after-care worker to inspect such an appliance and should it appear in any way uncomfortable, to report to the surgeon for examination. Crutches not infrequently need to be lengthened from time to time to compensate for wearing down. Pattens are apt to break ; careless parents will sometimes not trouble to have them renewed or repaired.

Great care should be taken of crippled children to see that they do not indulge in rough games or take excessive exercise.

Most crippled children now discharged from hospitals are eligible for admission to one of the physically defective children's schools. If arrangements for education have not been made, the after-care worker should look into

the matter and see whether the child cannot be admitted to some such school.

In the case of children where special schools are not available, it is important, subject to the surgeon's consent, for the welfare worker, when arranging for the child's attendance at some other school, to explain to the head master or the head mistress the nature of the condition from which the patient is suffering. A suitable seat and desk should be provided so that undue strain may not be put upon the joint or limb affected. As a rule, such patients should not be permitted in the school playground, and where possible, it should be arranged for the child to leave the school a few minutes before the appointed time, so as to avoid danger or injury from the other children.

The importance of cleanliness on the parents' part should be emphasised, and the necessity for avoidance of any rough handling. Instructions as to plain, wholesome diet should be given, and efforts should be made to ensure that the child has adequate rest.

The bedroom, of course, should be well ventilated, and directions should be given as

to the necessity of assisting the child during micturition and defæcation.

Where possible, such patients should be given the benefit of a change of air at least once a year. This is best secured by an annual visit to a suitable seaside or country house.

Parents should be impressed with the importance of keeping the children under skilled surgical observation for a lengthy period, extending into years. This is desirable, to ensure that any tendency to relapse or for the disease to extend, have early attention, and that the splint provided be changed or modified as occasion demands.

An appliance should never be discarded except upon the instructions of the surgeon in charge of the case. The surgeon can often give valuable advice as to the amount of schooling to be allowed, and the nature of the education or training likely to be of most use.

The after-care worker should inspect, from time to time, the part affected, and should anything unusual be noticed, the patient should be immediately referred to the surgeon.

Matters should not be left until such time as the child has been asked to report again. Abscesses sometimes develop quickly, and if skilled treatment be not instantly available, they may burst and become secondarily infected. In such case, not only does the child suffer unnecessary pain, but life may be endangered.

The Training of Voluntary Workers.

The voluntary worker should obtain some training. The instruction should cover the subjects of elementary sociology, economics, hygiene, physiology and tuberculosis, and be supplemented by practical experience of general social welfare and special work in tuberculosis. The scope of the training must be determined by the amount of time that can be devoted to it. Most authorities recommend a course extending over two years, but a useful working knowledge can be obtained within a considerably shorter period. The Joint University Council for Social Studies (56, Bedford Street, N., Liverpool) has published the following list of University departments at which training may be had.

UNIVERSITY.			APPLY.
BELFAST	...	...	The Director of Social Studies, Queen's University, Belfast.
BIRMINGHAM	...	...	Chairman, Social Study Committee, The University, Edmund Street, Birmingham.
BRISTOL	...	...	The Registrar, The University, Bristol, or the Warden, University Settlement, Barton Hill, Bristol.
EDINBURGH	...	...	The Director, School of Social Study and Training, The University, Edinburgh.
GLASGOW	...	...	Hon. Secretary, Glasgow School of Social Study and Training, 30, Lilybank Gardens, Glasgow, W.
LEEDS	...	...	The Secretary, The University, Leeds.
LIVERPOOL	...	...	The Director of Studies, The School of Social Studies, 56, Bedford Street, N., Liverpool.
LONDON; BEDFORD... COLLEGE			The Director of Social Studies, Bedford College, Regent's Park, N.W.1.
KING'S COLLEGE FOR WOMEN	...	...	The Dean, Household and Social Science Dept., King's College for Women, Campden Hill Road, W.8.
RATAN TATA DEPT.	...	...	The Director, Ratan Tata Department of Social Science and Administration, Clare Market, London, W.C.
MANCHESTER	...	...	Secretary to the Social Study Committee, The University, Manchester.
WALES, CARDIFF	...	...	Dean of the Faculty of Arts, University College, Cardiff.

The training scheme for health visitors now being organised by local authorities under the Ministry of Health, and the curriculum of the Almoner's Council (Denison House, London, S.W. 1) includes the necessary subjects. The Charity Organisation Society has arranged a scheme of training, particulars of which can be had on application to the Secretary, Denison House, Vauxhall Bridge Road, London, S.W.1. The National Association for the Prevention of Tuberculosis is also organising a course of instruction; for particulars, application should be made to the Hon. Sec., 20, Hanover Square, London.

Practical experience can be obtained at most Tuberculosis Dispensaries, and at Chest Hospitals which have a Social or Almoner's Department.

A knowledge of nursing is not required, since purely special duties are carried out by a special staff. Those who would know something of the nursing of the tuberculous will find simple directions in a small handbook by Dr. Burra.*

* "A Practical Manual of Tuberculosis for Nurses," by L. T. Burra, M.D., 2s., John Bale, Sons and Danielsson, 83-91, Great Titchfield Street, W.

BOOKS FOR WELFARE WORKERS.

MATERNITY & CHILD WELFARE. A Monthly Journal for Workers among Mothers and Children. Price 1s. net. Annual Subscription 10s. 6d. post free.

BABY. Useful Hints for Busy Mothers. Tenth Edition. 57th thousand. By EDITH L. MAYNARD. With Introductory Note by JOHN ROBERTSON, M.D., B.Sc. Foolscep 8vo, pp. 36. Price 2d. net each, postage 1d.

BABIES IN PERIL. By EDITH M. BENNETT. With an Introduction by W. PETT RIDGE. Price 6d. net, postage 1½d.

NURSERY SCHOOLS. A Practical Handbook. By MARGARET McMILLAN, C.B.E., and Others. Chapters by Margaret McMillan, C.B.E.; Evelyn S. Newman; Clara E. Grant; William J. Howarth, M.D.; Grace Owen, B.Sc.; Mary L. Eckhard; Freda Hawtrey; and a series of Appendices. Demy 8vo, pp. 112, limp cloth. Price 5s. net, postage 6d.

EUGENICS AND ENVIRONMENT. By Professor C. LLOYD MORGAN, LL.D., F.R.S. Crown 8vo, pp. 82 + vi. Price 2s. net, postage 3d.

HANDBOOK for INFANT HEALTH WORKERS IN CONNECTION WITH SCHOOLS FOR MOTHERS. By R. MANWOOD H. WALFORD, M.R.C.S.Eng., L.R.C.P.Lond., Medical Officer, North St. Pancras School for Mothers and Hampstead Infant Health Society. Crown 8vo, cloth. Price 1s. 5d. net, postage 3d.

INDUSTRIAL CLINIC. Edited by EDGAR LEIGH COLLIS, M.D., B.Ch., M.A.Oxon., Talbot Professor of Preventive Medicine, University of Wales, late Director (Welfare and Health) Ministry of Munitions, and H.M. Medical Inspector of Factories. Demy 8vo, 248 pages and 4 plates. Price 10s. 6d. net, postage 9d.

JOHN BALE, SONS & DANIELSSON, Ltd.
83-91, Great Titchfield Street, London, W. 1